What is claimed is:

1.   A method of routing traffic from each of a plurality of
2. incoming line cards to one of a plurality of outgoing line cards to which
3. outgoing transmission lines are connected, comprising:
4.   monitoring said outgoing transmission lines;
5.   communicating a fault indication to all of said incoming line cards if
6. a fault condition is detected in at least one of said outgoing transmission
7. lines; and
8.   updating a routing table at each of said incoming line cards
9. according to the fault indication so that packets from said incoming line
10. cards are routed to normally operating outgoing transmission lines.

2.   The method of claim 1, further comprising:
2.   monitoring said outgoing line cards;
3.   communicating a fault indication to all of said incoming line cards if
4. a fault condition is detected in at least one of said outgoing line cards; and
5.   updating a routing table at each of said incoming line cards
6. according to the fault indication so that packets from said incoming line
7. cards are routed to normally operating outgoing line cards.

3.   A method of routing traffic from each of a plurality of
2. incoming line cards to one of a plurality of outgoing line cards to which
3. outgoing transmission lines are connected, comprising:
4.   receiving, at each of said incoming line cards, a packet from one of
5. said incoming transmission lines;

6   determining an output port of a self-routing switch based on an

7 address contained in the packet by using routing information stored in a

8 routing table;

9   converting the packet into at least one intra-node cell of fixed data

10 length and forwarding the cell to the switch so that the cell is routed to

11 said output port;

12   receiving intra-node cells from the self-routing switch, converting

13 the cells into a packet;

14   forwarding the packet to an outgoing transmission line;

15   monitoring the outgoing transmission lines;

16   communicating a fault indication to the incoming line cards if a fault

17 condition is detected in at least one of said outgoing transmission lines;

18 and

19   updating said routing table at each of said incoming line cards

20 according to said fault indication so that traffic from the incoming line

21 cards is routed to a normally operating outgoing transmission line.

1   4. The method of claim 3, wherein the communicating step

2 comprises communicating said fault indication via said self-routing switch.

1   5. The method of claim 3, further comprising:

2   monitoring said outgoing line cards;

3   communicating a fault indication to all of said incoming line cards if

4 a fault condition is detected in at least one of said outgoing line cards; and

5   updating said routing table at each of said incoming line cards

6 according to the fault indication so that packets from said incoming line

7   cards are routed to normally operating outgoing line cards.

1   6.   The method of claim 5, wherein the communicating step

2   comprises communicating said fault indication via said self-routing switch.

1   7.   A packet routing system comprising:

2   a self-routing switch;

3   a plurality of incoming line cards, connected to respective input

4   ports of the self-routing switch, each incoming line card receiving an

5   incoming packet, determining an output port of the self-routing switch

6   based on an address contained in the packet by using routing information

7   stored in a routing table, converting the packet into at least one intra-node

8   cell of fixed data length and forwarding the cell to the switch so that the

9   cell is routed to said output port; and

10   a plurality of outgoing line cards, connected to respective output

11   ports of the self-routing switch, each outgoing line card receiving intra-

12   node cells from the self-routing switch, converting the cells into a packet,

13   forwarding the packet to an outgoing transmission line, monitoring the

14   outgoing transmission line, and transmitting a fault indication to the

15   incoming line cards if a fault condition is detected in said outgoing

16   transmission line,

17   each of said incoming line cards being responsive to the fault

18   indication for updating said routing table so that traffic from the incoming

19   line cards is routed to a normally operating outgoing transmission line.

1   8.   The packet routing system of claim 7, wherein each of said

2   outgoing line cards is configured to monitor operating status of the

3   outgoing line card and transmitting a fault indication to the incoming line

4   cards if a fault condition is detected in said outgoing line card, each of said

5   incoming line cards being responsive to the fault indication for updating

6   said routing table so that traffic from the incoming line cards is routed to a

7   normally operating outgoing line card.

1   9.   The packet routing system of claim 7, wherein each of said

2   outgoing line cards is configured to transmit said fault indication of the

3   outgoing transmission line to the incoming line cards via said self-routing

4   switch.

1   10.   The packet routing system of claim 8, wherein each of said

2   outgoing line cards is configured to transmit said fault indication of the

3   outgoing line card to the incoming line cards via said self-routing switch.

1   11.   A packet routing system comprising:

2   a self-routing switch;

3   a plurality of incoming line cards, connected to respective input

4   ports of the self-routing switch, each incoming line card receiving an

5   incoming packet, determining an output port of the self-routing switch

6   based on an address contained in the packet by using routing information

7   stored in a routing table, converting the packet into at least one intra-node

8   cell of fixed data length and forwarding the cell to the switch so that the

9   cell is routed to said output port; and

10   a plurality of outgoing line cards, connected to output ports of the

11 self-routing switch, for receiving intra-node cells from the self-routing,

12 each of the outgoing line cards including:

13 an interface having an input terminal connected to a

14 corresponding one of said output ports of the switch and a plurality of

15 output terminals for distributing the received intra-node cells to one of the

16 output terminals; and

17 a plurality of packet assemblers respectively connected to

18 said output terminals of the interface, each packet assembler receiving the

19 cells from the corresponding output terminal, converting the cells into a

20 packet, and forwarding the packet to an outgoing transmission line,

21 a monitoring circuit for monitoring the outgoing

22 transmission line, and transmitting a fault indication to the incoming line

23 cards if a fault condition is detected in said outgoing transmission line,

24 each of said incoming line cards being responsive to the fault

25 indication for updating said routing table so that traffic from the incoming

26 line cards is routed to a normally operating outgoing transmission line.

1 12. The packet routing system of claim 11, wherein each of said

2 outgoing line cards is configured to monitor operating status of the

3 outgoing line card and transmitting a fault indication to the incoming line

4 cards if a fault condition is detected in said outgoing line card, each of said

5 incoming line cards being responsive to the fault indication for updating

6 said routing table so that traffic from the incoming line cards is routed to a

7 normally operating outgoing line card.

1 13. The packet routing system of claim 11, wherein each of said

2   outgoing line cards is configured to transmit said fault indication of the

3   outgoing transmission line to the incoming line cards via said self-routing

4   switch.

1   14.   The packet routing system of claim 11, wherein each of said

2   outgoing line cards is configured to transmit said fault indication of the

3   outgoing line card to the incoming line cards via said self-routing switch.